

AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of the claims in this application.

Listing of Claims:

1. (CURRENTLY AMENDED) A method of ~~delivering a packet in a scatternet having a network topology comprising:~~

receiving a packet at a first device in a first piconet of a scatternet comprising multiple piconets, wherein the packet is for delivery to a destination device in a second piconet of the scatternet and wherein the scatternet has a first network topology;

determining whether it is possible to modify the first network topology by creating a direct radio communications link, between the first device and the destination device, that adds a short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology;

if it is not possible to add the short-circuit,

forwarding the packet within the first network topology of the scatternet; and

if it is possible to add the short-circuit:

creating a new direct radio communications link between a the first device ~~in a first piconet of a scatternet~~ and a the destination device ~~in a second piconet of the scatternet, wherein the direct radio communications link creates a short circuit in the network topology that adds the short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology; and,~~

transmitting the packet via the new direct radio communications link of the second

network topology.

2. (CANCELLED)

3. (CURRENTLY AMENDED) A method as claimed in claim 1, wherein ~~the step of creating a new direct radio communications link creates~~ adds a third piconet between that connects the first piconet and the second piconet to the first network topology to create the second network topology.

4. (CANCELLED)

5. (CURRENTLY AMENDED) A method as claimed in claim 1, wherein the first network topology of the scatternet has a topology is defined at initiation of the scatternet as a set of links between devices and is not subsequently redefined except for devices leaving and joining the scatternet and wherein creating the new direct radio communications link adjusts augments the defined topology of the scatternet by the addition of an extra link to the set of links but does not otherwise add or remove links from the set of links.

6. – 9. (CANCELLED)

10. (CURRENTLY AMENDED) A method as claimed in ~~claim 9~~ claim 1, wherein the packet comprises an address of the destination device and ~~the step of wherein determining whether it is possible to modify the first network topology by adding a short-circuit~~ uses the identity of the destination device to determine whether it is possible to modify the first network topology by adding a short-circuit comprises determining if the destination device is within radio communication range of the first device.

11. (CANCELLED)

12. (CURRENTLY AMENDED) A method as claimed in ~~claim 9~~ claim 1, wherein the first device maintains a list of devices within radio communication range.

13. (ORIGINAL) A method as claimed in claim 12, wherein the list comprises, for each device within communication range, an address and a clock offset.

14. (CANCELLED)

15. (CURRENTLY AMENDED) A method as claimed in claim 12, wherein determining whether it is possible to modify the first network topology by adding a short-circuit ~~the step of determining~~ comprises ~~the first device~~ determining whether the destination device is included in the list.

16. (CANCELLED)

17. (PREVIOUSLY PRESENTED) A method as claimed in claim 1, wherein the direct radio communications link is temporary.

18. (ORIGINAL) A method as claimed in claim 17, wherein the direct radio communications link is released after a predetermined period of inactivity.

19. (CANCELLED)

20. (CANCELLED)

21. (CURRENTLY AMENDED) A memory tangibly embodying a computer program ~~embodied on a memory~~ and executable by a processor to ~~perform a~~ enable performance of the method as claimed in claim 1.

22. (CURRENTLY AMENDED) A device ~~for participating in a first piconet of a scatternet~~

~~having a network topology and for delivering a packet to a destination device in a second piconet of the scatternet comprising:~~

~~means for creating a new direct radio communications link to the destination device that creates a short-circuit in the network topology while maintaining an existing direct radio communications link of the scatternet within the first piconet; and,~~

~~a radio transmitter for transmitting the packet via the new direct communications link~~
a receiver for receiving a packet via a first piconet of a scatternet comprising multiple piconets, wherein the packet is for delivery to a destination device in a second piconet of the scatternet and wherein the scatternet has a first network topology;

controller circuitry configured to determine whether it is possible to modify the first network topology by creating a direct radio communications link, between the first device and the destination device, that adds a short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology; and configured, in response to a determination that it is not possible to add the short-circuit, to enable forwarding of the packet within the first network topology of the scatternet and configured, in response to a determination that it is possible to add the short-circuit, to enable creation of a new direct radio communications link between the first device and the destination device that adds the short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology; and,

a radio transmitter configured to transmit the packet via a newly created direct radio communications link of the second network topology.

23. (CURRENTLY AMENDED) ~~A method of delivering a packet from a first device in a first piconet of a scatternet having a network topology to a destination device in a second piconet of the scatternet comprising:~~

~~receiving the packet at the first device~~ receiving a packet at a first device in a network for

delivery to a destination device in the network wherein the network has a network topology;

determining whether the creation of a direct radio communications link between the first device and the destination device that short-circuits the network topology is possible; ~~and,~~

if it is not possible, forwarding the packet within the ~~scatternet~~ network; and

if it is possible, creating a new direct radio communications link between the first device and the destination device that short-circuits the defined network topology and transmitting the packet via the new direct radio communications link.

24. (ORIGINAL) A method as claimed in claim 23, further comprising adding an address of the first device to the packet before forwarding it.

25. – 36. (CANCELLED)

37. (NEW) A method as claimed in claim 13, wherein the packet is transmitted via the new direct radio communications link of the second network topology to the destination device using a frequency dependent upon a frequency hopping sequence determined by the address of the destination device and with a phase dependent upon the clock offset of the destination device.

38. (NEW) A method as claimed in claim 17, wherein the direct radio communications link is released after the packet has been transmitted and the topology of the scatternet reverts from the second network topology back to the first network topology.

39. (NEW) A device as claimed in claim 22, wherein the new direct radio communications link adds a third piconet that connects the first piconet and the second piconet to the first network topology to create the second network topology.

40. (NEW) A device as claimed in claim 22, wherein the first network topology of the scatternet is defined at initiation of the scatternet as a set of links between devices and is not subsequently substantially redefined and wherein the new direct radio communications link augments the defined topology of the scatternet by the addition of an extra link to the set of links but does not otherwise add or remove links from the set of links.

41. (NEW) A device as claimed in claim 22, wherein the packet comprises an address of the destination device and wherein the controller uses the identity of the destination device to determine whether the destination device is within radio communication range.

42. (NEW) A device as claimed in claim 22, wherein the device maintains a list of devices within radio communication range.

43. (NEW) A device as claimed in claim 42, wherein the list comprises, for each device within communication range, an address and a clock offset.

44. (NEW) A device as claimed in claim 43, wherein the controller is configured to enable transmission of the packet via the new direct radio communications link of the second network topology to the destination device using a frequency dependent upon a frequency hopping sequence determined by the address of the destination device and with a phase determined by the clock offset of the destination device.

45. (NEW) A device as claimed in claim 22, wherein the controller is configured to temporarily maintain the direct radio communications link.

46. (NEW) A device as claimed in claim 22, wherein the controller is configured to release the direct radio communication link after a predetermined period of inactivity.

47. (NEW) A device as claimed in claim 22, wherein the controller is configured to release the direct radio communication link after the packet has been transmitted and revert the topology of the scatternet to the first network topology.

48. (New) A method as claimed in claim 23, wherein the direct radio communications link is temporary and does not redefine the network topology.

49. (New) A method as claimed in claim 23, wherein the direct radio communications link is released after a predetermined period of inactivity.

50. (NEW) A method as claimed in claim 23, wherein the direct radio communications link is released after the packet has been transmitted.